

Experimental Investigation of Partial Replacement of Coarse Aggregates with Waste Tiles in Concrete

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ABSTRACT

Rural urbanization and rapid constructions are vital parameters that govern the enhancement of waste production. For developing countries such as India, the recycling or reuse of the waste are prominent concerns with ever increasing population at startling rate. Demolished buildings and the ceramic factories produce ample amount of waste tiles up to approximately 7%. The aspect of use of ceramic tiles wasted has found huge application in field of structural concrete. The wasted tiles can replace coarse aggregates (CA) of comparable sizes. The replacement by crushed ceramic tiles aggregates of CA is investigated in current study. Physical testing of waste tiles was done to examine their suitability for usage in concrete instead of CA. Impact value, crushing strength and ability to soak up moisture are included in physical testing. The properties stated above were comparable with CA hence their feasibility was established. Mechanical (compressive and flexural) properties via replacement of waste tiles aggregates with coarse aggregates at 0, 5, 10 and 15 % are investigated. 24 numbers of beams and cubes are casted for the task. Experimental results reveal that replacement results in higher compressive as well as flexural strength but at 15% replacement, maximum compressive as well as flexural strength are obtained in comparison to normal concrete which depicts suitability of ceramic tiles in concrete.